




**County Council of the Parts of
Holland, Lincolnshire.**

ANNUAL REPORT

OF THE

Medical Officer of Health.

1921



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County Council of the Parts of Holland, Lincolnshire.

TO THE CHAIRMAN AND MEMBERS OF THE PUBLIC HEALTH
AND HOUSING COMMITTEE.

Gentlemen,

Herewith I present my annual report on the health of the County, for the year ending 31st December, 1921. In spite of adverse circumstances, the health of the community was maintained, and the death-rate was lower even than that of the previous year, and therefore the lowest on record.

The effects of the drought were severely felt in this area, but what might have become a grave menace to the public health proved, fortunately, to be mainly a source of great inconvenience. To avoid a repetition of these experiences, a Water Board should be formed for the whole County area to control and distribute the water from all underground sources of supply, so that the inhabitants of every district, including those of the Borough of Boston, may have the opportunity afforded them of drinking pure water. The County is more favourably situated in this respect than many other areas, in that there are within its boundaries abundant supplies of wholesome water which only require to be tapped and distributed.

The era of reconstruction has been succeeded, almost at its birth, by that of retrenchment, and many important schemes, notably in connection with Housing and Infant Welfare, are at present in abeyance. The district Medical Officers' reports, therefore, contain little beyond a record of routine work.

Ten years having elapsed since this department came into existence, I have, for the information of the district Medical Officers of Health, brought together, in the form of an appendix to this report, the chief recommendations that have been made during the decennium, 1911-1920.

Dr. J. Grant Millar relinquished his appointments in the latter part of the year, being succeeded as Medical Officer of Health for the Holbeach Urban District by Dr. W. Ormsby, and for the East Elloe Rural District by Dr. F. Walker. The papers and books used in connection with these appointments having been lost, there is little information obtainable with respect to these districts.

I am, Gentlemen,

Your obedient Servant,

A. W. TUXFORD.

Sessions House, Boston,

August, 1922.

Sanitary Authorities within the County.

Sanitary Authority.	Medical Officer of Health.	Date of Receipt of Report.
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Urban:—

Boston Borough	A. Tuxford, M.D., L.S.A.	10 June
Spalding	J. R. Munro, M.D.	2 Aug.
Holbeach	J. Grant Millar, M.B., Ch.B.	No report made
Long Sutton	N. Elrington, M.R.C.S., L.R.C.P., L.S.A.	15 Mar.
Sutton Bridge	G. F. Collins, M.R.C.S., L.R.C.P.I., L.M., D.P.H.	25 June

Rural:—

Boston	S. S. Rendall, M.B., B.S., M.R.C.S., L.R.C.P.	15 Aug.
Spalding	S. H. Perry, M.R.C.S., L.R.C.P.	10 July
East Elloe	J. Grant Millar, M.B., Ch.B.	22 April
Crowland	F. Husband-Clutton, M.R.C.S., L.R.C.P.	25 July

Port:—

Boston	A. Tuxford, M.D., L.S.A.	No report made
Wisbech ...	G. F. Collins, M.R.C.S., L.R.C.P.I., L.M., D.P.H.	10 June

VITAL STATISTICS.

AREA.—The total area of the Parts of Holland is 268,992 acres. This area is limited towards the East by sea-banks, and does not include many thousands of acres of reclaimable land, which now form the borders of the Wash. 46,247 acres are in the Urban, and 222,745 acres in the Rural Districts, but the greater part of the area of the Urban Districts is agricultural land, and the whole of the urbanised portions of the County do not exceed in area the least extensive of the Urban Districts, the Borough of Boston (2,727 acres). There are no inhabited houses in the County which are distant more than a few hundred yards from the open country, and no particular purpose would be served by keeping separately the records of the Urban and the Rural Districts.

POPULATION.—The population of the County at the middle of the year is estimated, from the Census figures, to have been 85,461. The estimates for the districts are now reliable, and in some cases, as was anticipated, show considerable variations from those of the previous year. In the case of the Boston Urban District the difference consists in the addition of 624, whilst in the Spalding Rural District 662 are deducted from the previous year's estimate of the population.

BIRTH RATE.—The nett birth rate was 24.1 per 1000 of the population, as compared with 22.4 for England and Wales, and 24.7 for the County in the previous year. The highest rate, 26.4, was in the Crowland Rural District, and the lowest, 18.6, in the Long Sutton Urban District.

DEATH RATE.—The nett death rate was 11.5 per 1000, as compared with 12.1 for England and Wales, and 12.0 for the County in the previous year, which until this year was the lowest death rate hitherto recorded. The highest rate, 12.7, was in the Boston Urban District, and the lowest, 9.5, in the Crowland Rural District.

VITAL STATISTICS, 1921.

DISTRICT.	Nett Births.		Total Deaths.		Transferable Deaths.		Nett Deaths.		Infant Mortality.	
	No.	Rate per 1000 of estimated population.	No.	Rate per 1000 of estimated population.	Non-residents registered in district.	Residents not registered in district.	No.	Rate per 1000 of estimated population.	Nett deaths under 1 year of age.	Rate per 1000 of Nett Births.
URBAN:										
Boston	361	22.3	236	14.6	37	7	206	12.7	34	94
Spalding	258	24.1	141	13.2	16	3	128	12.0	19	74
Holbeach	139	25.8	62	11.5	10	5	57	10.6	9	65
Long Sutton ..	60	18.6	32	9.9	—	6	38	11.8	6	100
Sutton Bridge	58	24.8	22	9.4	—	2	24	10.3	3	52
RURAL:										
Boston	556	25.2	240	10.9	3	36	273	12.4	42	76
Spalding	380	24.7	126	9.4	2	15	139	10.4	27	82
East Elloe	227	23.9	83	8.7	6	19	96	10.1	14	62
Crowland	72	26.4	23	8.4	—	3	26	9.5	6	83
Parts of Holland	2061	24.1	965	11.3	74	96	987	11.5	160	78
England and Wales		22.4						12.1		83

The analysis of the death rate, given below, shows a low mortality from epidemic and respiratory diseases, the last being only a little more than half the average mortality. These results are attributable to a continuance of mild winter weather, and to greater resistance to disease due to an improved standard of living since the war.

Year.	Estimated Population.	Nett Birth Rate.	Nett Death Rate.	Infant Mortality per 1000 births.	Diarrhoeal Diseases (under 2 years) per 1000 births.	Other Death-rates per 1000 of Population.				
						Other Zymotic Diseases.	Phthisis.	Other Tuberculous Diseases.	Other Respiratory Diseases.	Cancer.
1911	82,996	25.1	15.1	117	36	.48	.76	.47	1.77	1.14
1912	83,543	23.9	13.3	90	7	.60	.85	.42	1.76	1.29
1913	84,104	24.0	13.3	95	13	.58	.65	.40	1.76	1.08
1914	84,672	24.4	13.6	91	12	.53	.63	.25	1.91	1.22
1915 * (81,052)	84,672	21.8	15.4	94	6	.74	.88	.32	2.46	1.26
1916 * (78,466)	85,372	21.4	14.2	64	8	.34	.99	.32	1.82	1.39
1917 * (76,771)	85,577	17.9	13.5	91	8	.27	.94	.29	2.01	1.31
1918 * (76,841)	86,097	18.5	17.5	86	8	.75	.88	.27	2.42	1.55
1919 * (81,863)	85,277	19.1	13.3	81	9	.16	1.06	.31	1.61	1.36
1920	85,125	24.7	12.0	75	10	.60	.95	.29	1.16	1.34
1921	85,461	24.1	11.5	78	13	.21	.82	.29	1.03	1.44
Average Rates Decennium 1911—1920.		22.1	14.1	88	12	.51	.86	.33	1.87	1.29

* Estimated civil population for calculation of death-rates.

CAUSES OF DEATH AT EACH AGE-PERIOD AND IN EACH DISTRICT.

CAUSES OF DEATH.	All Ages.	Under 1 year.	1 and under 2.	2 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and under 75.	75 and upwards.	Urban Districts.					Rural Districts.			
											Boston.	Spalding.	Holbeach.	Long Sutton.	Sutton Bridge.	Boston.	Spalding.	East Ellce.	Crowland.
Enteric Fever	2	..	..	..	..	1	1	1	..	..	1	1	..	..	..	..	..	..	..
Measles	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough	7	4	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	7	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	12	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Encephalitis Lethargica	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pulmonary Tuberculosis	70	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Tuberculous Diseases	25	3	3	2	3	2	7	11	1	..	17	8	6	2	2	20	5	7	1
Cancer, malignant disease	123	..	..	..	..	..	8	44	42	29	28	11	8	8	5	33	13	14	3
Rheumatic Fever	3	..	1	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..
Diabetes	7	..	..	..	..	..	2	..	..	..	2	1	..	..	..	..	..	..	..
Cerebral Hemorrhage	70	..	..	..	..	..	10	27	25	35	24	11	3	3	2	16	5	6	..
Heart Disease	108	..	..	..	1	..	8	8	42	30	13	25	3	4	2	24	18	18	..
Arterio-sclerosis	21	7	..	..	..	..	1	1	8	12	2	8	1	2	2	8	7	2	3
Bronchitis	39	17	3	1	3	..	4	2	9	18	13	6	3	2	1	12	6	2	..
Pneumonia (all forms)	39	3	3	2	1	..	..	2	4	2	8	19	1	..	1	3	2	1	..
Other diseases of Respiratory Organs	10	3	..	..	..	..	..	..	..	..	1	..	2	..	..	1	2	1	..
Ulcer of Stomach	2	..	..	..	..	..	..	..	..	..	7	..	..	..	..	4	4	..	..
Diarrhoea &c. (under 2 years)	26	23	3	..	..	..	..	..	..	..	..	3	2	2	..	1	3	..	..
Appendicitis and Typhlitis	6	1	..	..	..	..	2	1	2	..	..	2	1	..	..	1	3	..	..
Cirrhosis of Liver	6	..	..	..	..	..	1	2	3	2	5	3	1	..	..	..	2	4	..
Acute and Chronic Nephritis	17	..	..	..	1	..	2	4	6	..	..	..	1	..	..	..	1	..	..
Puerperal Sepsis	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..
Other accidents & diseases of Pregnancy & Parturition	1	73	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..
Congenital Debility, etc	74	..	..	..	1	..	..	..	..	..	14	12	5	3	1	18	11	6	4
Suicide	9	..	..	..	..	..	3	3	3	..	3	2	1	1	..	5	2	4	..
Other deaths from Violence	20	2	..	1	2	4	4	3	47	4	3	2	18	12	7	5	5	20	1
Other Defined Diseases	274	21	3	6	7	3	19	33	135	135	47	21	21	..	..	95	48	20	6
Diseases ill-defined or unknown	2	..	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..
All Causes	987	160	22	14	30	32	99	156	201	273	206	128	57	38	24	273	139	96	26

A new table of causes of death is now issued, and it is interesting to observe that deaths from Cerebral Hæmorrhage are now included under a separate heading, as was suggested in my last report. This disease was responsible for as many deaths as Pulmonary Tuberculosis, the mortality being .82 per 1000.

INFANT MORTALITY.—160 deaths took place of infants under 1 year of age, the mortality being 78 per 1000 births, as against a rate of 83 for England and Wales. The highest rate was 100 in the Long Sutton Urban District, and the lowest was 52 in the Sutton Bridge Urban District.

MATERNITY AND CHILD WELFARE.

INFANT WELFARE.—The County Council having decided to discontinue Infant Welfare Work for the present, the staff of health visitors gradually diminished by resignations during the year, until there is now only one health visitor left. The average staff throughout 1921 was two.

During the year 1,316 births, of which 55 were still-births, were notified, 1,218 by parents and doctors, and 98 by midwives. 45 were stated by local Medical Officers of Health not to require visiting.

The total number of visits paid by the Health Visitors was 2,712, made up as follows:—

To Infants under 1:—First Visits 511. Total Visits 2,106.

To Children aged 1—5. Total Visits 606.

Of the cases receiving first visits, 429 were breast-fed and 82 bottle-fed.

274 defects were found as follows:—Nutritional 80, Intestinal 40, Umbilical 16, Bronchitis and Whooping Cough 24, Sores and Rashes 11, Ophthalmia 3, Thrush 2, Hernia 7, Neglect 10, Convulsions 3, others 32, and 46 cases of ill-health of mothers. In 55 cases, the mother was advised to consult a doctor, and medical aid was obtained in 41 cases; advice was given by the Nurses in 180 cases. Of the total number of defects found, 144 are reported to have been remedied and 43 improved. In addition, sanitary defects were found in 18 instances, and in 3 cases were notified to the local Medical Officer of Health. The Sanitary Inspector visited the house in 2 cases, and the conditions are reported to have been remedied.

BOROUGH OF BOSTON.—There were 636 names on the register of the Infant Welfare Centre, of which 146 were new cases, and 2500 attendances were registered. Milk was supplied to necessitous mothers and babies in 28 cases.

SPALDING URBAN.—"Child Welfare work is carried on by voluntary workers at the Church Cote, and a large number of mothers take advantage of this valuable work."

MIDWIVES' ACTS, 1902 AND 1913.—14 midwives notified the Local Authority of their intention to practise during the year. 3 were bona-fide midwives, and eleven were trained nurses, of whom one was temporarily employed on holiday duty, and one was not equipped to undertake cases.

The following notifications were received:—Still-births 4, liability to become a source of infection 3, artificial feeding 1, sending for medical aid 27. The last group included:—Abortion 2, prolonged labour 3, obstructed labour 1, foot presentation 1, posterior position of head 1, ruptured perineum 7, raised temperature 2, retained placenta 1, varicose veins and oedema 1, death of foetus 1, phimosis and undescended testicles 1, ophthalmia 3, feebleness of infant 2, cough and cold (infant) 1.

Fees amounting to £6 6s. were paid to medical men called in in 4 of the above cases.

3 midwives were suspended from practice for 2 weeks for the prevention of infection.

The 3 bona-fide midwives become yearly more unfitted for practice and now attend very few cases. The nurses, most of whom are under the Lincolnshire County Nursing Association, continue to render useful services, though it is mainly as maternity nurses rather than as midwives that these services are utilised by local practitioners in some parishes.

The midwife appointed by the Spalding Nursing Association, at the suggestion of the County Council, attended 63 cases, and her work has been much appreciated locally. The midwife of the Maternity and Infant Welfare Centre at Boston attended 52 cases.

INFECTIOUS DISEASES.

The accompanying table of notifications of infectious disease is compiled from the weekly postcards received from the district Medical Officers of Health. It is incomplete as no information was received from the Holbeach Urban and East Elloe Rural Districts during the last four months of the year. There was not so much infectious illness as usual, but its disproportionate incidence in the Northern districts, particularly in the Borough, is to be noted.

ENTERIC FEVER.—5 cases were notified, of whom 2 died (40 per cent. case-mortality). 4 of the cases occurred in the Borough of Boston, and all these were isolated in hospital.

DIPHTHERIA.—58 cases with 7 deaths gave a case-mortality of 12.1 per cent., and a death rate of .08 per 1000 population. One-half of the cases occurred in the Boston Urban and Rural Districts, and one-third of the total number were treated in hospital. One school required closure.

SCARLET FEVER.—There were 115 notifications of this disease, and 1 death (.9 per cent. case-mortality). The cases were chiefly in the Boston and Spalding Rural Districts, and there is no doubt that the outbreak was assisted by the non-recognition of mild cases and by the fact that Scarlet Fever, being now generally of a mild type, is apt to be regarded rather as an inconvenience than as a possibly dangerous and certainly infectious illness. Less than a quarter of the cases were removed to hospital. No schools were closed.

MEASLES AND GERMAN MEASLES.—These diseases are not now notifiable, but were, apparently, not very prevalent. One death was recorded, and no schools were closed for this cause.

WHOOPING COUGH caused 7 deaths (.08 per 1000) and necessitated the closure of 2 schools.

PNEUMONIA.—There were 14 notifications and 39 deaths (.46 per 1000). 20 of the deaths took place in the Boston Urban and Rural Districts, from which no notifications have been reported.

TUBERCULOSIS.—81 cases of pulmonary, and 17 of non-pulmonary, tuberculosis were notified, of which two-thirds arose in the Boston Urban and Rural Districts. These figures can only be regarded as approximate, as a certain number of the cases notified were found eventually not to be tuberculous, and under the present system of distribution of functions between the public health officials of the various local authorities, the County Medical Officer has no means of knowing what proportion of the deaths from this disease were of cases that had not been notified. 70 deaths were registered as due to pulmonary, and 25 to other forms of tuberculosis.

PUERPERAL FEVER.—One death took place of an un-notified case, the mortality-rate being .5 per 1000 births.

NOTIFICATIONS OF INFECTIOUS DISEASE, 1921.

DISEASE.	PARTS OF HOLLAND.	URBAN DISTRICTS.					RURAL DISTRICTS.				
		Boston.	Spalding.	Holbeach.	Long Sutton.	Sutton Bridge.	Boston.	Spalding.	East Ellce.	Crowland.	
Enteric Fever	5	4	1	—	—	—	—	5	—	—	
Diphtheria	58	15	6	3	1	2	16	9	—	—	
Scarlet Fever	115	10	7	2	—	—	42	53	—	—	
Erysipelas	12	2	1	2	—	—	5	—	1	—	
Ophthalmia Neonatorum	5	3	—	—	—	—	2	—	—	—	
Cerebro-Spinal Fever	2	2	—	—	—	—	—	—	—	—	
Encephalitis Lethargica.	7	4	1	—	1	—	—	—	—	1	
Dysentery	1	1	—	—	—	—	—	—	—	—	
Malaria	1	—	—	—	—	—	—	1	—	—	
Tuberculosis, Pulmonary	81	33	7	3	2	—	22	9	5	—	
Tuberculosis, Non-Pulmonary	17	4	4	—	—	—	7	2	—	—	
Pneumonia.	14	—	5	3	—	1	—	—	3	2	
Total Notifications	318	78	32	13	4	3	94	70	18	6	
CASES ISOLATED IN HOSPITALS											
Enteric Fever	4	4	—	—	—	—	—	—	—	—	
Diphtheria	20	9	—	1	—	—	8	—	2	—	
Scarlet Fever	26	8	1	—	—	—	17	—	—	—	
Mumps	1	—	—	—	—	—	1	—	—	—	
Total	51	21	1	1	—	—	26	—	2	—	

DIARRHOEA.—There were 26 deaths of children under the age of 2 years, the mortality-rate being 12.6 per 1000 births. Owing to the drought, a larger incidence of this disease was anticipated, and a request was made by one Medical Officer of Health to the County Health Department for the issue of a leaflet of the precautions that should be taken. The leaflet was duly drawn up and sent to all the Medical Officers of Health, only one of whom, and he not the applicant, published it.

OTHER DISEASES.—Influenza caused 12 deaths (.14 per 1000) and the closure of 2 schools. Of 7 cases of Encephalitis Lethargica notified, 4 died. 12 cases of Erysipelas, 5 of Ophthalmia Neonatorum, and one each of Dysentery and Malaria were also notified. One school was closed for Chicken Pox.

THE CONTROL OF INFECTIOUS DISEASE

DISINFECTION.—The disinfection of houses is carried out with various chemicals in the different districts. Formalin lamps, carbolic acid, izol, sulphur candles, corrosive sublimate and sanitas are used, but in only one district, the Holbeach Urban, is the formalin spray reported to be used. This is the most efficacious of all disinfectants, but requires time and care in its application. Its adoption in all districts is to be desired. There is an efficient steam disinfector at the Skirbeck Isolation Hospital for the use of the Boston Urban and Rural Districts.

ISOLATION HOSPITALS.—There is no change in this respect, but I understand that an arrangement is pending for the isolation of infectious cases occurring in the Spalding Rural District at the Bourne Isolation Hospital. Some such arrangement has long been badly needed in the Spalding Rural District, and, though the hospital is situated outside the district and the County, it is well equipped, and cases are removed there in a motor ambulance.

PREVENTION OF TUBERCULOSIS.—The provision of "Sanatorium Benefit" by Insurance Committees ceased on the 30th April, after which date the treatment of all classes of the community, whether insured or not, devolved directly on County Councils. The advantages accruing from this simplification of the methods of providing treatment are, to a certain extent, lessened by the new and complex arrangements for obtaining quarterly reports from practitioners giving domiciliary treatment to insured persons, which are in practice not very effective. Other changes, due to the campaign for economy, are that food allowances are now granted only to the most necessitous cases, and that all patients, including insured persons, are required to contribute

according to their means to their maintenance in sanatoria. For the same reason, the purchase of Norton House for the residential treatment of Tuberculosis was very nearly prevented. Fortunately, the negotiations had advanced to such a stage that it was not practicable to prohibit the completion of the purchase. There was steady, though slow, progress during the year towards the establishment of a dispensary and a hospital at Norton House. Both of these, after many years' search, and the inspection of numerous other buildings, are at length provided for this area, having been opened in April and July of this year respectively. There is still no dispensary at Spalding, the Ministry of Health not having, as yet, sanctioned the alterations required to adapt the old Blue Coat School for this purpose.

During the year, sanatorium treatment was provided for 42 persons, including 13 ex-Service men. 3 cases of non-pulmonary tuberculosis were also sent to various institutions. The 24 shelters of the County Council were in use by 34 patients during the year. The Health Visitors paid 653 visits to tuberculous patients. Defects of sanitation were found in 4 cases, and were reported to the respective Medical Officers of Health.

WATER SUPPLY.

The shortage of water in this area during the summer and autumn was a condition that is bound to recur on the occasion of the next season of drought, unless some of the recommendations are adopted that have been made in these reports during the last ten years. Except in the Spalding Urban and Rural Districts, the people throughout the County were put to great inconvenience, and considerable risks were taken with regard to the public health, solely because the local authorities have from time to time postponed taking any decisive action. The question has two aspects—that which concerns the Borough of Boston with Skirbeck, and that which concerns the remainder of the County area, except its Western part which is well supplied. The formation of a Water Board for the whole area would solve the problem from both points of view, and enable pure water to be carried, not only to Boston, but to the extreme edges of the County. The expense would be less, in proportion, than in the case of similar undertakings in more sparsely populated districts. Less thorough alternatives concern Boston only. One of them is indicated in the following extract from my annual report for 1914, when Boston was in a state similar to that of last year.

“So long as the existing source of supply is relied upon, there will always be a liability to a recurrence of the shortage under similar conditions of weather, and the possibility of obtaining a permanent supply from other sources should be considered. The nearest supply of deep well water is that

of the Donington Water Company, which is about 12 miles from Boston. This water is pure, the supply (at present over 300,000 gallons per diem) is unfailing and could be increased by additional bores. The nearest point of the Spalding Rural District Council's water mains is about 13 miles from Boston. Either of these sources is capable of supplying Boston and Skirbeck with a constant service of good water, with the additional advantage of supplying also the villages traversed by the mains."

The other alternative is suggested by Dr. Rendall in his report. The Miningsby water, at its best, is a poor water, and not to be compared with that from the Lincolnshire limestone, but it can no doubt be improved considerably, in quality as well as quantity, by storage for an adequate period in properly-constructed reservoirs, as has been proved by Sir A. Houston at the Waterworks of the Metropolitan Water Board. This would involve extensive improvements and additions at the Waterworks. It is also very desirable that they should be under the control of the local sanitary authorities, whose sole concern would be to afford a plentiful supply of the best quality of water which the works are capable of producing. Neither of these alternative schemes is entirely satisfactory, as it leaves the rest of the County unprovided for.

BOSTON URBAN.—The Medical Officer of Health writes : —“ Since my last report, a very grave crisis has arisen in relation to the water supply of the Borough. Owing to the drought, the Water Company notified the Council on July 4th last, that the supply for domestic purposes would be discontinued on August 1st, but water would be pumped into the mains from the Mount Pleasant Drain for flushing purposes. The Council at once took steps to provide and distribute a pure supply of drinking water, and they arranged with the Great Northern Railway Company to supply 20,000 gallons a day from their bore at Willoughby and bring same to Boston. This supply commenced on August 2nd, 1921, and is distributed in street water vans, each holding 400 gallons, which were specially cleansed and cement washed inside. Each person is allowed 1 gallon per day, also the brewers, bakers, mineral water manufacturers, and other trades are supplied.

I attach copies of the bacteriological analyses taken from time to time, and from the latest it will be seen that although the reservoir is full and running to waste the water is still bad.

I view with very great alarm the present and future position of the Borough as regards its water supply. As it would appear the mains are polluted with the water pumped into them from the Mount Pleasant Drain, also the analysis of water taken close to the reservoir at the Home Farm (Reg. No. 889) clearly shows the filters are not efficient, and unless the Boston Waterworks Company at once instal a proper and efficient system of filtration, in my opinion, the gravest consequences may arise, as the sewerage system of the Borough is antiquated and bad. ”

The results of analysis of several samples of the Company's water, taken between February and April, 1922, are given. They show bacterial contamination of a similar nature to that found in 1914.

LONG SUTTON URBAN.—"Last summer the want of water was very acutely felt, and a great deal of water was used for drinking which was quite unfit for that purpose."

BOSTON RURAL.—"In the majority of cottages in the country the supply of drinking water is collected from the roof and stored in cisterns. During the summer of 1921 these cisterns became exhausted, and it was then necessary to obtain supplies; in some cases it had to be brought from a distance; but in a large number of cases the only available source was the 'drains' in the neighbourhood. In some districts, even the drains became exhausted.

Skirbeck has a water supply in common with Boston from the Miningsby Reservoir.

This supply definitely failed on August 1st, 1921, owing to the drought, and was supplemented by water pumped into the mains from the Mount Pleasant drain. This additional source of supply was quite unfit for drinking and cooking, and could only be used for flushing purposes.

Your Council at once arranged for a sufficient supply of drinking water obtained from Willoughby. This was brought by rail to Boston, and delivered by water carts. This water was of excellent quality, but, necessarily, limited in quantity.

There are, however, grave objections to the transport of water in this way, in addition to the objection of the heavy expense involved.

The objections are, that water does not keep well in closed vessels, and rapidly deteriorates under such conditions. Also when so frequently handled—that is collected, put into tanks, brought by rail, transferred to water carts, distributed by the road side, stored in the house for 24 hours—it is obviously very liable to contamination. I had frequent complaints about the taste of the Willoughby water, and attribute these complaints to staleness of the water or accidental contamination.

My reason for drawing your attention to these points is to emphasise the necessity of securing a *fuller* supply of water for Skirbeck than is at present obtainable.

This is the third occasion on which the Miningsby supply has failed you, and the failure is directly attributable to an insufficient storage capacity at the reservoir. Normally, during the winter months, water is constantly running to waste that could be collected and stored in anticipation of a dry summer.

The *quality* of the water from the Miningsby supply has been in the past quite satisfactory, but the water reserve is markedly deficient.

As regards the quality, the water company are installing a chlorination plant in the future, in addition to the filter beds, and this should certainly result in a very pure quality of water. But I do trust that steps will be taken in the future to secure a bigger reserve of water.

Fortunately, the serious water position of this year has not led to any epidemic of infectious disease, but it is unlikely that we should so escape on every occasion."

SPALDING RURAL.—"During the past year the Council's energetic management of the water supply has prevented great distress and loss to this district.

The more thickly populated parts of the area are now supplied with excellent water of a very high standard of purity.

During the past year 350 farm-houses and cottages have been added to those previously supplied, besides 3 schools, 4 bake-houses, 2 slaughter-houses, and 17 grass fields.

Approximately, 1750 more persons have received a supply.

Mr. George informs me that the pressure in December was $12\frac{1}{2}$ lb., but is now on the increase.

Last summer the pressure fell from $19\frac{1}{2}$ lbs. to 18 lb. per square inch, and fell steadily during the autumn.

Altogether 14 miles of extension of the water mains has been laid during the year."

EAST ELLOE RURAL.—"The hardships suffered in the outlying districts were very great at times, and the cost of carting water must have been in the aggregate a very large sum, representing more than the cost of a water supply in many cases. It is to be hoped that it will not be long before a permanent remedy is found for the water difficulty in a considerable part of the district."

FOOD SUPPLIES.

More samples of milk were taken for analysis than in former years, and the proportion of samples of adulterated milk continues to be large. The fines imposed now are not so heavy as those of 4 or 5 years ago. There are very few references to food supplies in medical officers' reports, and such information as is given is of a most general kind.

BOSTON URBAN.—The Sanitary Inspector's report states:—"Cowsheds limewashed 8, cow-keeper with cows with very dirty udders ordered to be washed 1."

SPALDING URBAN.—Dairies, cowsheds, bakehouses and places where food is prepared, have been inspected. There are 12 slaughter-houses.

SUTTON BRIDGE URBAN.—The inspection of places where food is prepared "has been both periodic and systematic."

BOSTON RURAL.—All cowsheds and dairies are inspected and disinfected. 32 cowsheds were limewashed and one drain repaired. 13 slaughter-houses were inspected and found in good condition.

SPALDING RURAL.—Slaughter-houses, bake-houses, cowsheds and dairies are inspected frequently and are in excellent condition.

CROWLAND RURAL.—Bake-houses and the 2 slaughter-houses are in good condition.

SALE OF FOOD AND DRUGS ACTS.

Food or Drug Analysed.	Administrative County.			Borough of Boston.	
	No. of Samples taken.	No. found Adul- terated.	No. found inferior.	No. of Samples taken.	No. found Adul- terated.
Milk.....	52	7	..	43	3
Butter.....	17	1	..	..	..
Margarine	4	..	..	..	..
Lard	4	..	..	..	..
Bread	1	..	..	..	..
Cornflour	1	..	..	..	..
Brown Sugar.....	3	..	..	..	..
Treacle	1	..	..	..	..
Strawberry Jam	1	..	..	..	..
Fish Paste	1	1	..	..	..
Tea	1	..	..	..	..
Malt Vinegar.....	1	..	..	..	..
White Pepper	1	..	..	..	..
Mustard	1	..	..	..	..
Whiskey	4	..	..	..	..
Gin	2	1	..	..	..
	95	10	..	43	3

In the area of the Administrative County, 95 samples were taken, 85 of these being certified genuine.

The 10 cases of adulterated food were dealt with as follows:—

Sample.	Adulteration.	Action taken.	Result.
Milk.....	10 percent Fat Deficiency	Vendor summoned	Fined 10/-
„	18 „ „ „	„	Fined £2
„	22 „ „ „	„	Summons dismissed
„	31 „ „ „	„	Fined £2
„	10 „ „ „	„	Fined 10/-
„	8 „ „ „	„	Fined 10/-
„	5.6 per cent Extraneous Water		Fined 10/-
Butter....	6.91 per cent Excess Water	No action	
Gin	40.47 degrees under proof	Vendor summoned	Summons dismissed
Fish Paste	14.007 grains of Boric Acid per lb.	No action taken	

In the Borough of Boston 3 samples of milk were deficient in fat to the extent of 11.66, 17.33 and 19 per cent. respectively. In the last case the vendor was prosecuted and fined 40s.

No action was taken, either in the County or the Borough, under the Milk and Cream Regulations.

HOUSING.

Little progress has been made. The housing schemes detailed in my report for 1919 are, for the most part, in abeyance for the present, though not altogether, the various districts differing widely in the extent to which they are developing their schemes. From the following notes, taken from Medical Officers' reports, the districts also appear to differ widely in the extent to which house inspection is carried out.

BOSTON URBAN.—The housing scheme for the Borough has been dropped, owing to the high cost of material and labour. Three houses were built during the year, two of which ranked for subsidy, the owner of the third refusing to comply with the requirements of the Housing Commissioner. Nothing has been done in regard to insanitary areas beyond the demolition of 4 cottages by the owners.

SPALDING URBAN.—Eleven houses were built under the scheme. 96 houses were inspected, and in 42 of these defects were remedied without service of formal notices.

LONG SUTTON URBAN.—Dr. Elrington does not propose any definite scheme at present, but draws attention to the fact that several houses, particularly one row in Little Dereham, are not fit for occupation.

SUTTON BRIDGE URBAN.—27 houses were erected by the Ministry of Agriculture, and 1 privately, during the year. 554 houses were inspected (out of a total of 581 in the district). 66 houses were not in all respects fit, and in 4 cases proceedings were taken under the Public Health Acts, and defects remedied by the owners.

BOSTON RURAL.—33 new houses were built, 8 of which form part of the housing scheme. 7 notices were served under the Public Health Acts, and the defects were remedied by the owners. 6 closing orders were made.

SPALDING RURAL.—52 houses are now completed under the housing scheme. The few cases of gross overcrowding that have occurred have been remedied. There are no unhealthy areas, and no closing or demolition orders have been necessary. Minor defects are continually being rectified. 460 inspections of houses were made.

EAST ELLOE RURAL.—No note.

CROWLAND RURAL.—One new house was erected, and 24 are returned as not fit in all respects for habitation. No action was taken.

GENERAL SANITATION.

ADOPTIVE ACTS, BYE-LAWS, ETC.—The accompanying table is as complete a statement as it is practicable to obtain of the optional powers exercised by the local sanitary authorities. Its numerous variations from the similar table compiled 7 years ago suggests that it is only approximately correct, and that there is considerable uncertainty in some districts as to the powers actually possessed.

Act or Bye-law.	Urban Districts.					Rural Districts.			
	Boston.	Spalding.	Holbeach.	Long Sutton.	Sutton Bridge.	Boston.	Spalding.	East Elloe.	Crowland.
ADOPTIVE ACTS.									
Public Health Acts Amendment Act, 1890	Yes	Yes ¹		Yes ¹					
Public Health Acts Amendment Act, 1907	Yes							Yes ²	
Infectious Diseases (Prevention) Act, 1890	Yes	Yes	Yes						
Cleansing of Persons Act, 1897									
Private Streets Works Act, 1892	Yes	Yes	Yes						
BYE-LAWS AND REGULATIONS.									
Public Health Act, 1875 :—									
Sec. 44—Scavenging and Cleansing			Yes	Yes	Yes				
Sec. 44—Prevention of Nuisances	Yes		Yes	Yes	Yes				
Sec. 44—Keeping of Animals	Yes			Yes	Yes				
Sec. 80—Common Lodging Houses	Yes	Yes	Yes	Yes					
Sec. 90—Houses Let in Lodgings									
Sec. 113—Offensive Trades									
Sec. 141—Mortuaries									
Sec. 157—New Streets and Buildings		Yes	Yes	Yes				Yes	
Sec. 167—Markets and Fairs		Yes							
Sec. 169—Slaughter Houses	Yes	Yes	Yes	Yes					
Public Health Acts Amendment Act, 1890 :—									
Sec. 20—Public Sanitary Conveniences ..									
Sec. 23—New Streets and Buildings	Yes								
Sec. 26—Scavenging and Cleansing									
Housing of the Working Classes Act, 1885 :—									
Sec. 9—Tents, Vans, Sheds, &c.	Yes			Yes					
Public Health (Interments) Act, 1885 :—									
Sec. 2—Cemeteries		Yes		Yes					
Public Health (Fruit Pickers') Act, 1882 :—									
Accommodation for Fruit and Vegetable Pickers									
Dairies, Cowsheds and Milkshops Order :—									
Regulations under the Order	Yes	Yes	Yes			Yes	Yes	Yes	

1.—Part III. only.

2.—Part II. only.

COMMON LODGING HOUSES.—There is now only one common lodging house in Boston, used during the year by 3,564 persons. Sec. 80 of the Public Health Act, 1875, requiring the sanitary authority to make bye-laws in this connection has not yet been complied with in Crowland.

MOVEABLE DWELLINGS.—27 vans were inspected and found in good order in the Boston Urban District, but there is no report on any work under the Canal Boats Acts in this district.

SHIPPING. BOSTON PORT.—No report has been made this year.

WISBECH PORT.—12 foreign and 70 coastwise ships, of which 48 were steamships, entered the port. 15 steamships and 3 sailing vessels were inspected at Wisbech and found in a satisfactory condition and free from infectious disease. The 12 foreign vessels were inspected at Sutton Bridge and found clean and free from illness and rats. The Port Sanitary hospital is in good order.

FACTORIES AND WORKSHOPS. BOSTON URBAN.—16 defects found by the Sanitary Inspector and 4 by H.M. Inspector were remedied. 5 lists of out-workers, relating to 332 workers engaged in pea-picking and making wearing apparel were received. 23 cases of out-work in unwholesome premises were noted.

NUISANCES.—This subject is, in some of the reports, not mentioned, or else is referred to in the most general way. This is to be regretted, as records of the action taken in this connection are probably the best indication of the vigilance of local sanitary authorities.

BOSTON URBAN.—The Sanitary Inspector reports 185 nuisances abated.

SPALDING URBAN.—No report.

LONG SUTTON URBAN.—The total number of inspections made, for all purposes, was 984. 23 nuisances were remedied after informal notice.

SUTTON BRIDGE URBAN.—14 nuisances were informally dealt with.

BOSTON RURAL.—148 nuisances were abated.

SPALDING RURAL.—No report.

EAST ELLOE RURAL.—No report.

CROWLAND RURAL.—No report.

REFUSE AND SEWAGE DISPOSAL.—There are two matters to which attention may be drawn in connection with refuse disposal. One is the suggestion of Dr. Collins to his Council that only galvanised iron bins should be allowed for the collection of refuse; this should be the rule in all urban districts. The other is a suggestion, made at a recent conference between the London Sanitary Authorities and the Ministry of Health, that the nuisance from refuse tips can be greatly mitigated by forming the tip in layers of not too great thickness, each layer being covered with earth. One tip thus treated became a breeding place for rabbits, instead of the usual plague of rats. The method seems to be worth considering in this area, where the tips are sometimes a source of considerable nuisance.

BOSTON URBAN.—15 privies and 3 ash closets were converted into slop closets. 44 defective drains were remedied.

SPALDING URBAN.—No closets were converted to the water carriage system. There are 659 pan closets.

SUTTON BRIDGE URBAN.—241 cesspools, 347 vault closets, and 7010 pan closets were emptied during the year. There were 451 weekly collections of refuse. The whole drainage system was cleaned out during the summer, and is now working as well as the fall of the land will allow. Householders have now been notified that the Council will only undertake, free of charge, to collect refuse from portable receptacles. Dr. Collins suggests that the Council should insist on the use of galvanised iron bins.

POLLUTION OF STREAMS.—There is nothing to add to the information on this matter given in previous reports.

APPENDIX.

RECOMMENDATIONS MADE IN ANNUAL & SPECIAL REPORTS, DECENNIAL, 1911-1920.

* Recommendation adopted. † Recommendation partly adopted.

VITAL STATISTICS.

† The separation of deaths due to Cerebral Hæmorrhage and Old Age from the total deaths due to "Other defined diseases" in the Registrar-General's annual summaries of deaths.

MATERNITY AND CHILD WELFARE.

† The instruction of the older girls in elementary schools in infant care and domestic hygiene.

† The appointment of Health Visitors throughout the County.

* The appointment of a certificated midwife by the Spalding Nursing Association to be subsidised by the County Council.

CONTROL OF INFECTIOUS DISEASE.

The weekly returns from rural districts should indicate the parishes in which cases of infectious disease occur.

† Arrangements should be made in each sanitary district for bacteriological diagnosis.

Systematic examination of school-children and exclusion of suspected cases, by the local M.O.H., to obviate school closure during epidemics of Diphtheria and Scarlet Fever.

The more general use of *efficient* methods, such as spraying of formalin, for the disinfection of houses.

† The installation of a steam disinfectant at each Isolation Hospital.

The establishment of one central Isolation Hospital for the whole County area, to promote efficiency and economy.

The systematic veterinary inspection of cows for the prevention of Tuberculosis.

* The establishment by the County Council, for the prevention of Tuberculosis, of a system of dispensaries, open-air shelters, and institutional accommodation for early and advanced cases.

WATER SUPPLY.

The more frequent use of covered tanks, in preference to underground cisterns, for the storage of rain-water for drinking purposes.

An agreement between the local sanitary authorities in South Holland for the distribution of the daily flow of one million gallons of pure water from the Pinchbeck bore.

The formation of a Water Board to control and distribute throughout the whole area, including the Borough of Boston, the supply from the Lincolnshire Limestone on the Western border of the County.

The establishment of parish supplies of rain-water collected from the roofs of the large village churches.

The supply of rain-water fit for drinking purposes for the houses of the Holbeach Crown Colony, by storage in covered tanks.

FOOD SUPPLIES.

The provision of an adequate and clean milk supply by means of:—

(a) Regulations to be made by those local sanitary authorities which have not already done so, under the Dairies, Cowsheds and Milkshops Orders.

(b) The establishment of municipal milk depots.

† (c) The analysis of a larger number of milk samples each year. The establishment of public abattoirs in each urban district.

HOUSING.

The erection by local authorities of houses of the simplest construction, to be kept under supervision, for the housing of the slum-making class, as a first step in housing reform.

The prevention of overcrowding by the adoption of some standard for limiting the number of occupants of houses according to the cubic air-space of the bedroom accommodation.

† The improvement of houses in Prospect Place, Long Sutton, to make them reasonably fit for human habitation.

The adoption of a housing scheme by the Long Sutton Urban District Council.

The adoption of a housing scheme by the Crowland Rural District Council to provide 40 new houses.

The provision, in rural sanitary authorities' schemes, for a certain proportion of bungalows, to save house labour and to increase rain-water supply.

The adoption of urban powers by the Crowland and other rural district councils for the control of the keeping of domestic animals in close proximity to houses.

REFUSE AND SEWAGE DISPOSAL.

The more general adoption of the dry-earth closet system which has been in successful operation at the Donington Schools for many years.

The more general use of covered receptacles for refuse in the urban districts.

The replacement of refuse tips by destructors in the larger urban districts.

The prevention of breeding of house-flies by the better control of refuse and manure heaps and their treatment with borax.

The abatement of the nuisance caused by the state of the Maud Foster Drain by the installation of a modern system of sewage disposal for Boston and Skirbeck.

